REMARKS/ARGUMENTS

Claims 1 and 3–10 are pending in the above-captioned application, and all of these claims stand rejected.

I. Claim rejections under 35 U.S.C. § 103(a) as being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations")

Claims 1, 3–7, and 10 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations," Nucleic Acids Research. 1998. Vol. 26, No. 13: Pages 3309–3310). This rejection is respectfully traversed. To warrant rejection under 35 U.S.C. § 103(a), all the claim limitations must be taught or suggested by the prior art. See MPEP § 2142.

With regard to amended claim 1, at a minimum, the combination of Stapleton and Moreira does not teach thermocycling and separating in the same sieving medium. As recited in Applicant's claim 1, PCR reaction components are mixed with a sieving medium, "wherein the sieving medium comprises a polymer solution, which polymer solution comprises less than about 0.4% polymer." The mixture is thermocycled, and resulting PCR products are separated "by flowing the one or more PCR products through the sieving medium." I.e., the same sieving medium, comprising a polymer solution comprising less than about 0.4% polymer, is involved in all three steps of claim 1.

Neither Stapleton nor Moreira teaches using the same sieving medium for thermocycling and separating. The Examiner has stated on page 3 of the current Office action that Stapleton discloses several examples in which PCR amplification followed by electrophoretic separation is performed within a sieving matrix, with particular emphasis being placed on Example 2, which gives details of the steps involved. Applicants draw the Examiner's attention to column 15, lines 2–4, in which Stapleton describes the amplification and separation matrices as being of "different" compositions. If the matrices discussed in Example 2 and shown at **46, 54,** and **56** in Figures 5 and 6 are of "different" compositions, they cannot be the same sieving medium. Details of formation of these three matrices, given in columns 9 and 10,

emphasize that the matrices are different. For example, column 10, line 36, describes each of these different matrices as a "submatrix," with transfer of nucleic acids from one submatrix to the next by electrophoresis made possible only upon removal of physical separations (e.g., extension sections 44) initially in place between the submatrices.

As demonstrated in Applicant's March 7, 2006, response, Moreira also teaches different thermocycling and separating matrices. Purified gDNA is thermocycled in agarose blocks having concentrations "as high as 0.3%." *See* page 3309, paragraph beginning at the bottom of column 1. Following thermocycling, the products are "electrophoresed on 1.2% agarose gels." *See* page 3310, the second full paragraph. Thus, Moreira, like Stapleton, teaches away from performing thermocycling and electrophoresis in the same sieving medium.

Combining the two cited references does not teach or suggest all of the limitations of claim 1. Withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations") is respectfully requested.

Claims 3–7 and 10 depend directly or indirectly from claim 1. Any claim depending from a nonobvious claim is also nonobvious. See MPEP § 2143.03 and *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, dependent claims 3–7 and 10 are nonobvious. Withdrawal of the rejections of these claims as being unpatentable over Stapleton in view of Moreira is also respectfully requested.

II. Claim rejections under 35 U.S.C. § 103(a) as being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors ...") and further in view of Woolley et al. ("Ultra-high-speed DNA fragment separations using microfabricated capillary array electrophoresis chips")

Claims 8 and 9 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations") and further in view of Woolley et al. ("Ultra-high-speed DNA fragment separations using microfabricated capillary array electrophoresis chips," Proc. Natl. Acad. Sci. November 1994. Vol. 91: Pages 11348–11352). This rejection is respectfully traversed.

As demonstrated above, Applicants' claim 1 is nonobvious. Claims 8 and 9 depend directly and indirectly, respectively, from claim 1. As any claim depending from a nonobvious claim is also nonobvious, dependent claims 8 and 9 are nonobvious. Further, Woolley et al. teach only electrophoretic separation of PCR products in a sieving matrix and do not teach mixing PCR reaction components with a sieving medium in a microfluidic channel or thermocycling the PCR reaction components in the same sieving matrix used for electrophoretic separation. Withdrawal of the rejection of claims 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Stapleton in view of Moreira and further in view of Woolley et al. is, therefore, respectfully requested.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney.

Respectfully submitted,

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Signed: Debra B. Burns